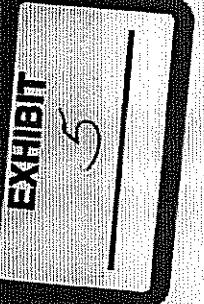


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AG alleges poultry waste runoff has caused injuries to the Illinois River Watershed, including lands, waters, biota, and sediment.

Exponent reviewed available information on habitat, fish, benthos, periphyton, freshwater mussels, and habitat

Exponent



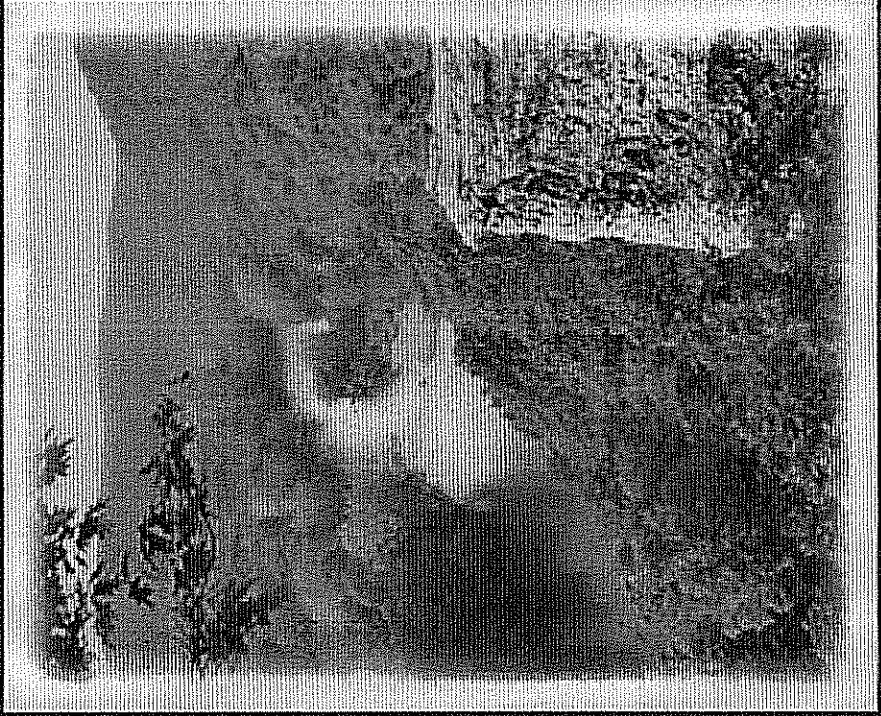
Ginn007093

Exhibit 4

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Drains approximately 1.1 million acres

Benton, Washington,
and Crawford Counties, AR
Delaware, Adair, Cherokee
and Sequoyah Counties, OK



Land use

49%	grassland
44%	forest
1%	cropland
0.3%	orchards and vineyards
3.5%	
2.2%	other land uses

State Scenic River

(Storm et al. 1996)

Exponent

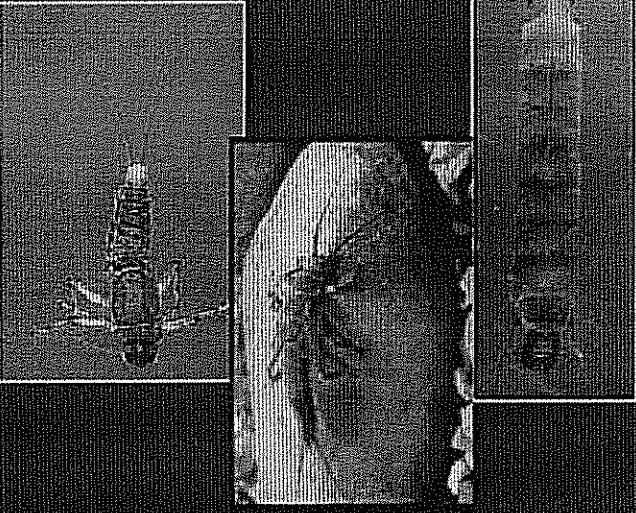
Ginn007094

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Serve as an early warning of pollution Or degradation in an ecosystem

Fish populations

- Benthic macroinvertebrates
- Ephemeroptera (mayflies)
- Plecoptera (stoneflies)
- Trichoptera (caddisflies)
- Periphyton



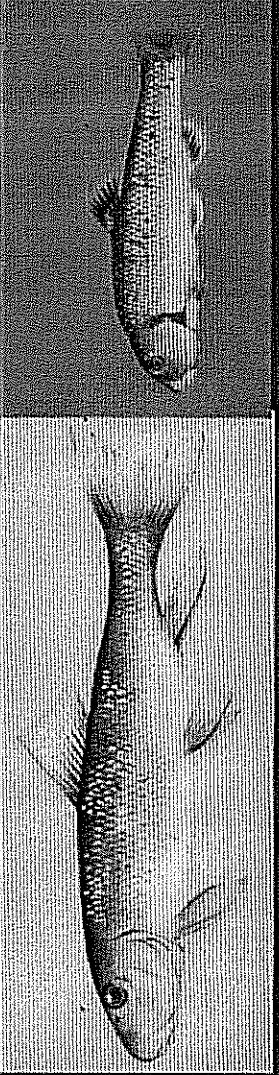
Exponent

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Affected in agricultural basins and downstream from WWTPs

- ↑ nutrients/sunlight
- ↑ periphyton
- ↑ relative abundance of stonerollers/suckers
- ↓ relative abundance of sunfish/darters



Exponent

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>70 species of fish

Stonerollers, Carchinal shiner, banded sculpin, longear sunfish, greenside darter, slender minnow, grave|Cribnub, green sunfish

Game fish

IL River: Largemouth and small-mouth bass, channel and flathead catfish, walleye, and sunfishes

Lake Tenkiller: Black bass, crappie, white bass and catfish

(ADEQ 2005, USEPA 2004)

Exponent

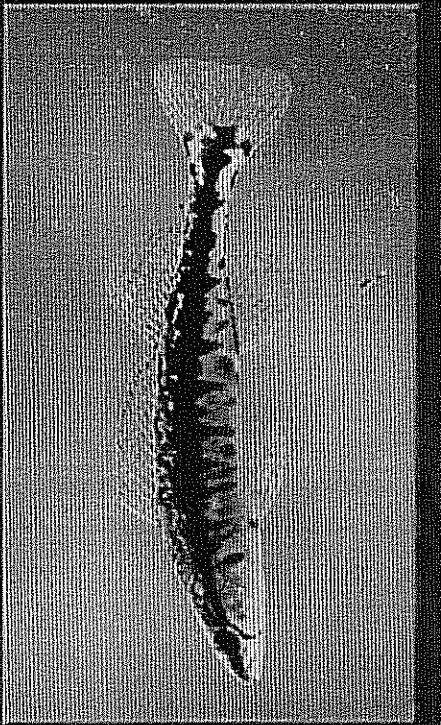
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Central Stoneroller



Banded darter



Glmn007098